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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,019	03/16/2005	Tadayoshi Ito	038440-0120	9311
23428 7590 05/27/2009 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007				
EXAMINER HERRERA, DIEGO D				
ART UNIT 2617		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/528,019

Applicant(s)

ITO, TADAYOSHI

Examiner

DIEGO HERRERA

Art Unit

2617

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,6-9,11-14,17 and 18 is/are rejected.
- 7) ☒ Claim(s) 2,3,5,10,15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 11 and 14, have been amended to comply, hence objection withdrawn.

Claims 12, 13, and 15, have been amended to comply, hence objection withdrawn.

Claims 5, 10, and 15, have been amended to comply, hence objection withdrawn.

Claim Rejections - 35 USC § 101

Claims 6–10, have been amended to comply with statutory subject matter, hence, rejection withdrawn.

Claim Rejections - 35 USC § 112

Claims 11-15, have been amended to comply, hence, rejection withdrawn.

Response to Arguments

Applicant's arguments filed 2/11/2009 have been fully considered but they are not persuasive. In response to applicants' arguments that the amended claims of 5, 10, and 15 to have been written in an allowable manner is incorrect since several limitations in independent claims 4, 9, and 14, respectively, are missing; hence, they are reasonably broad to read on the reference cited of Chao et al. and therefore are rejected accordingly. Suggestion is made that independent claims also contain limitations that allowable said claims pointed out be included in them as to further prosecution.

Examiners' notes

Examiner notes that the applicant has deleted the phrase "the steps of" in most of the claims, however, claims 6, 9-10, 12-13, and 15 have not been amended so.

In applicants' remarks the statement is made that "claims 16-19 are newly added," however, there are only claims 16-18, claim 19 is either missing or a typographical error was made.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-9, and 11-14 are rejected under 35 U.S.C. 102 (b) as being anticipated by Chao et al. (US 6178329 B1).

Regarding claim 1. A radio cell station apparatus in a mobile communication system (abstract, title, fig. 4a-11b, col. 2 lines: 43-46, col. 3 lines: 43-57, Chao et al. teaches communication system and base station detail), signals received in said mobile communication system including already-known reference signals (col. 4 lines: 5-16, 37-56, Chao et al. teaches neighboring base stations sharing information about channel pairing hence already-known reference signals through communication network system established), comprising:
search means for searching for a reference signal sent along a radio frequency already used in a neighboring cell station (col. 4 lines: 11-36, col. 5 lines: 41-60, Chao et al. teaches search means and more like receiving means about neighboring base stations

information about signals used in said neighboring cell);
storage means for storing the reference signal detected by said search means (col. 4 lines: 37-56, Chao et al. teaches memory in apparatus of base station) and reference signal allocation means for allocating (col. 3 lines: 50-57, Chao et al. teaches assigning means from base stations for signals requested by mobile terminals or mobile devices), when a connection request is received from a terminal device, a reference signal different from the reference signal stored in said storage means (col. 6 lines: 55—col. 7 lines: 27, Chao et al. teaches when request is made by mobile device channel availability data would be updated, hence, storing different reference signals in storage means of base stations).

Regarding claim 4. A radio cell station apparatus in a mobile communication system (abstract, title, fig. 4a-11b, col. 2 lines: 43-46, col. 3 lines: 43-57, Chao et al. teaches communication system and base station detail), signals transmitted/received in said mobile communication system including already-known reference signals (col. 4 lines: 5-16, 37- 56, Chao et al. teaches neighboring base stations sharing information about channel pairing hence already-known reference signals through communication network system established), comprising:

storage means for storing a plurality of reference signals sent along a radio frequency different from each other (col. 4 lines: 37-56, Chao et al. teaches memory in apparatus of base station); and

reference signal allocation means for randomly selecting (col. 3 lines: 50-57, Chao et al. teaches assigning means from base stations for signals requested by mobile terminals

or mobile devices), when a connection request is received from a terminal device, a reference signal from said storage means based on a cell station number assigned to each cell station and allocating the reference signal to said terminal device (col. 6 lines: 55—col. 7 lines: 27, Chao et al. teaches when request is made by mobile device channel availability data would be updated, hence, storing different reference signals in storage means of base stations).

Regarding claim 6. A reference signal allocation method performed by a radio cell station apparatus in a mobile communication system (abstract, title, fig. 4a-11b, col. 2 lines: 43-46, col. 3 lines: 43-57, Chao et al. teaches communication system and base station detail), signals received in said mobile communication system including already-known reference signals (col. 4 lines: 5-16, 37- 56, Chao et al. teaches neighboring base stations sharing information about channel pairing hence already-known reference signals through communication network system established), comprising the steps of: searching by the radio cell station apparatus for a reference signal sent along a radio frequency already used in a neighboring cell station (col. 4 lines: 11-36, col. 5 lines: 41-60, Chao et al. teaches search means and more like receiving means about neighboring base stations information about signals used in said neighboring cell); storing by the radio cell station apparatus said reference signal detected (col. 4 lines: 37-56, Chao et al. teaches memory in apparatus of base station); and allocating by the radio cell station apparatus, when a connection request is received from a terminal device (col. 6 lines: 55—col. 7 lines: 27, Chao et al. teaches when request is made by mobile device channel availability data would be updated, hence,

storing different reference signals in storage means of base stations), a reference signal different from said reference signal stored (col. 4 lines: 37-56, Chao et al. teaches memory in apparatus of base station).

Regarding claim 9. A reference signal allocation method performed by a radio cell station apparatus in a mobile communication system (abstract, title, fig. 4a-11b, col. 2 lines: 43-46, col. 3 lines: 43-57, Chao et al. teaches communication system and base station detail), signals transmitted/received in said mobile communication system including already-known reference signals (col. 4 lines: 5-16, 37- 56, Chao et al. teaches neighboring base stations sharing information about channel pairing hence already-known reference signals through communication network system established), comprising the steps of:

storing by the radio cell station apparatus a plurality of reference signals sent along a radio frequency different from each other (col. 4 lines: 37-56, Chao et al. teaches memory in apparatus of base station); and randomly selecting by the radio cell station apparatus, when a connection request is received from a terminal device, a reference signal from said plurality of reference signals based on a cell station number assigned to each cell station (col. 10 lines: 14-42, Chao et al. teaches assigning channel pairs based on a specific particular base station) and allocating the reference signal to said terminal device (col. 9 lines: 36-57, Chao et al. teaches updating assignments and availability of channel pairs and mobile terminals assigned with what base station has available as far as channel pairs for communication).

Regarding claim 11. A computer readable medium containing program code which,

when executed, causes a radio cell station apparatus in a mobile communication system to execute a reference signal allocation method (col. 7 lines: 19-26, Chao et al. teaches a processor executing programs embedded in memory), signals received in said mobile communication system including already-known reference signals (col. 4 lines: 5-16, 37- 56, Chao et al. teaches neighboring base stations sharing information about channel pairing hence already-known reference signals through communication network system established) comprising:

program code for searching for a reference signal by the radio cell station apparatus already used in a neighboring cell station (); program code for storing said reference signal detected (col. 4 lines: 11-36, col. 5 lines: 41-60, Chao et al. teaches search means and more like receiving means about neighboring base stations information about signals used in said neighboring cell); and

program code for allocating, when a connection request is received from a terminal device, a reference signal different from said reference signal stored (col. 9 lines: 36-57, Chao et al. teaches updating assignments and availability of channel pairs and mobile terminals assigned with what base station has available as far as channel pairs for communication).

Regarding claim 14. A computer readable medium containing program code which, when executed, causes a radio cell station apparatus in a mobile communication system to execute a reference signal allocation method (col. 7 lines: 19-26, Chao et al. teaches a processor executing programs embedded in memory), signals transmitted/received in said mobile communication system including already-known

reference signals (col. 4 lines: 5-16, 37- 56, Chao et al. teaches neighboring base stations sharing information about channel pairing hence already-known reference signals through communication network system established), comprising: program code for storing a plurality of reference signals sent along a radio frequency different from each other (col. 4 lines: 37-56, Chao et al. teaches memory in apparatus of base station); and program code for randomly selecting, when a connection request is received from a terminal device, a reference signal from said plurality of reference signals based on a cell station number assigned to each cell station (col. 10 lines: 14-42, Chao et al. teaches assigning channel pairs based on a specific particular base station) and allocating the reference signal to said terminal device (col. 9 lines: 36-57, Chao et al. teaches updating assignments and availability of channel pairs and mobile terminals assigned with what base station has available as far as channel pairs for communication).

Consider claim 7. The reference signal allocation method according to claim 6, further comprising the steps of:

before the connection request is received from said terminal device (col. 8 lines: 14-29, Chao et al. teaches before receiving request from mobile device having ACO table checked in blocks to see if channel pairs are available for mobile device), receiving in advance a communication signal communicated between said neighboring cell station (ACO table taught by Chao et al. is received with advanced notice of said neighboring cells information about channel pairs) and a terminal device communicating with said neighboring cell station (col. 8 lines: 30-38, Chao et al. teaches array about information

of mobile terminal device communicating with said neighboring cell station), and analyzing a reference signal in use from the received communication signal (col. 8 lines: 14-29, Chao et al. teaches analyzing channel pairs); and storing said analyzed reference signal (col. 8 lines: 14-29, Chao et al. teaches analyzing channel pairs).

Consider claim 8. The reference signal allocation method according to claim 7, further comprising the step of searching for the reference signal used in said neighboring cell station for each traffic slot allocated to said terminal device (col. 8 lines: 14-29, Chao et al. teaches before receiving request from mobile device having ACO table checked in blocks to see if channel pairs are available for mobile device).

Consider claim 12. The computer readable medium according to claim 11 executed by the radio cell station apparatus in the mobile communication system, the execution of the method caused by executing the program code contained in the computer readable medium, said method further comprising the steps of:

before the connection request is received from said terminal device, receiving in advance a communication signal communicated between said neighboring cell station (ACO table taught by Chao et al. is received with advanced notice of said neighboring cells information about channel pairs) and a terminal device communicating with said neighboring cell station (col. 8 lines: 30-38, Chao et al. teaches array about information of mobile terminal device communicating with said neighboring cell station), and analyzing a reference signal in use from the received communication signal (col. 8 lines: 14-29, Chao et al. teaches analyzing channel pairs); and

storing said analyzed reference signal (fig. 4a, 6, col. 8 lines: 14-52, Chao et al. teaches memory for storing analyzed channel pairs).

Consider claim 13. The computer readable medium according to claim 12 executed by the radio cell station apparatus in the mobile communication system, the execution of the method caused by executing the program code contained in the computer readable medium, said method further comprising the step of searching for the reference signal used in said neighboring cell station for each traffic slot allocated to said terminal device (col. 8 lines: 14-29, Chao et al. teaches before receiving request from mobile device having ACO table checked in blocks to see if channel pairs are available for mobile device).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chao et al. (US 6178329 B1), and in view of Applicant's Admitted Prior Art (AAPA) .

Consider claim 17. The reference signal allocation method of claim 8 wherein a reference signal is used for synchronization of communication within each traffic slot (page 1-2, applicants' background art states that this technique is well know in the art).

Consider claim 18. The reference signal allocation method of claim 13 wherein a reference signal is used for synchronization of communication within each traffic slot (page 1-2, applicants' background art states that this technique is well know in the art).

Allowable Subject Matter

Claims 2, 3, 5, 10, 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, for example, claim 3 which is dependent on claim 2 is therefore allowable since claim 2 has been deemed to contain allowable subject matter that if included in claim 1 would make claim 1 allowable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIEGO HERRERA whose telephone number is (571)272-0907. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Herrera/
Examiner, Art Unit 2617

/Lester Kincaid/
Supervisory Patent Examiner, Art Unit 2617